Fourier Transform Spectrometer

Completed Technology Project (2010 - 2016)

Project Introduction

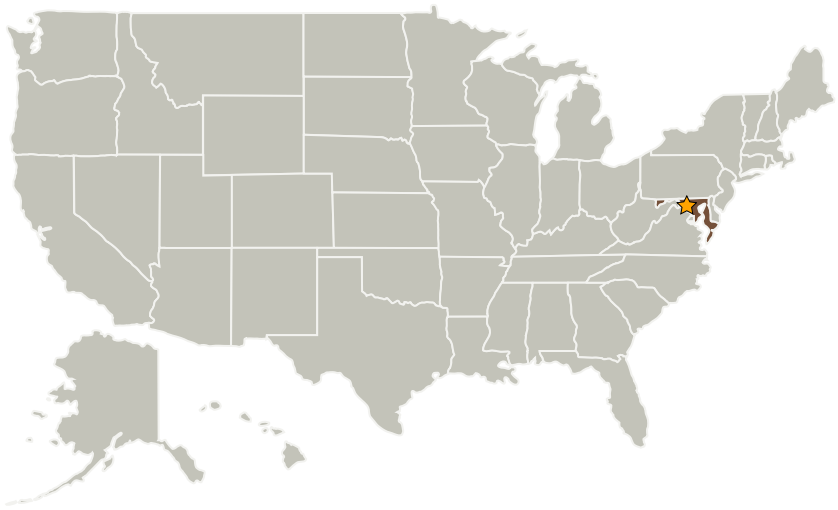
The Fourier Transform Spectrometer project demonstrates the efficacy of a miniaturized spectrometer for flight applications.

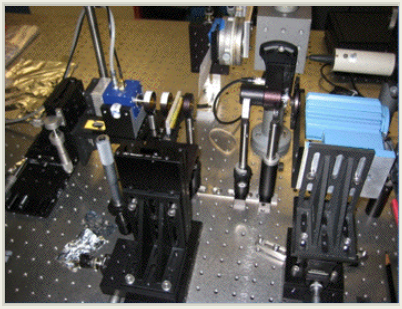
A spectrometer is an instrument used to measure properties of light to identify materials in the electromagnetic spectrum. The variable measured is usually the light's intensity. The independent variable is usually the wavelength of the light or a unit directly proportional to the photon energy, such as wavenumber or electron volts. A spectrometer is used in spectroscopy for producing spectral lines and measuring their wavelengths and intensities from gamma rays and X-rays into the far infrared. The challenge addressed by this project is how to minimize the size of a spectrometer to address mass and weight issues for space flight projects. The results of this project will be the basis for a new spectrometer design.

Anticipated Benefits

Spectrometer systems for future planetary missions.

Primary U.S. Work Locations and Key Partners





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Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland

Primary U.S. Work Locations
Maryland

Project Transitions

October 2010: Project Start

September 2016: Closed out

Closeout Summary: The purpose of the Goddard Space Flight Center's Internal Research and Development (IRAD) program is to support new technology development and to address scientific challenges. Each year, Principal Investigators (PIs) submit IRAD proposals and compete for funding for their development projects. Goddard's IRAD program supports eight Lines of Business: Astrophysics; Communications and Navigation; Cross-Cutting Technology and Capabilities; Earth Science; Heliophysics; Planetary Science; Science Small Satellites Technology; and Suborbital Platforms and Range Services. Task progress is evaluated twice a year at the Mid-term IRAD review and the end of the year. When the funding period has ended, the PIs compete again for IRAD funding or seek new sources of development and research funding or agree to external partnerships and collaborations. In some cases, when the development work has reached the appropriate Technology Readiness Level (TRL) level, the product is integrated into an actual NASA mission or used to support other government agencies. The technology may also be licensed out to the industry. The completion of a project does not necessarily indicate that the development work has stopped. The work could potentially continue in the future as a follow-on IRAD; or used in collaboration or partnership with Academia, Industry and other Government Agencies. If you are interested in partnering with NASA, see the TechPort Partnerships documentation available on the TechPort Help tab. http://techport.nasa.gov/help

Organizational Responsibility

Responsible Mission Directorate:

Mission Support Directorate (MSD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Center Independent Research & Development: GSFC IRAD

Project Management

Program Manager:

Peter M Hughes

Project Manager:

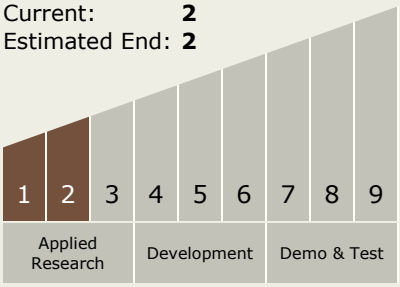
Brook Lakew

Principal Investigator:

Shahid Aslam

Technology Maturity (TRL)

Start: **1**
Current: **2**
Estimated End: **2**



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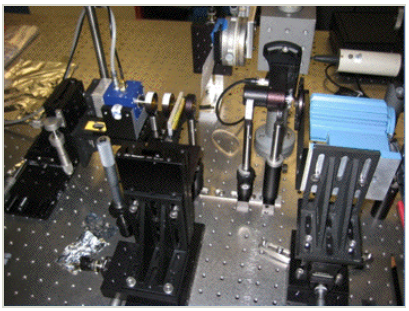
Images



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Fourier Transform Spectrometer
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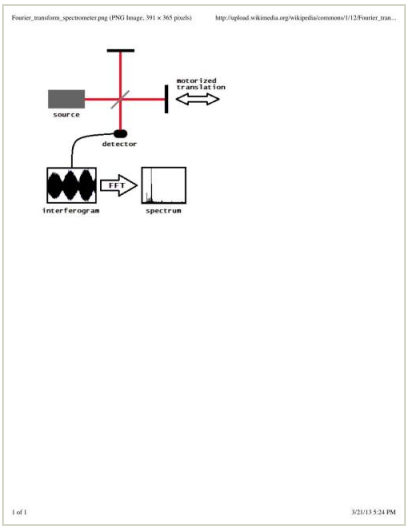

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Fourier Transform Spectrometer
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Links

NTR 1438370611
(no url provided)

Project Website:

http://sciences.gsfc.nasa.gov/sed/

Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.1 Detectors and Focal Planes